

REMARKS/ARGUMENTS

Claims 10 - 13 and 17 - 27 are in this application. Claims 1 - 9 and 14 - 16 have been canceled, claims 10 - 12 and 17 - 20 have been amended, claim 17 being amended to be an independent claim, and claims 21 - 27 have been added.

Claim 10 and 17 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,107,424 issued to Bird et al (Bird) in view of U.S. Patent 5,331,558 issued to Hossfield et al (Hossfield). While Bird and Hossfield disclose steering systems they do not, either individually or in combination, teach or imply the method of positioning the rudder of a ship as recited in claim 10, as amended.

Claim 10, as amended, specifically recites a rudder positioning method wherein a solenoid energizing burnout protection frequency is established, the solenoid energizing frequency is monitored to determine when the solenoid energizing frequency exceeds the energizing burnout protection frequency, and, should the energizing frequency exceed the burnout protection frequency, the rudder error at which the solenoid is energized is adjusted.

The Examiner's contention that the statement in Bird (col.4 lines 55,56), "In addition a time delay is imposed between successive activations of a particular solenoid", is equivalent to establishing an energizing frequency for solenoid burnout protection is incorrect. This is not equivalent to establishing a maximum energizing frequency for the protection of a solenoid, as recited in amended claim10. As the Examiner states, "...frequency is the number of occurrences of an event in a time period." . No events take place

during the time delay specified by Bird. This is just a time delay imposed on the activation of a solenoid after the solenoid has been previously activated. This time delay is not a measure of frequency. Bird does not teach or imply the establishment of an energizing frequency for solenoid burnout protection, monitoring the solenoid activation frequency to determine that the burnout protection frequency to determine if the burnout protection frequency is exceeded, and adjusting the rudder error at which the solenoids are activated if the protection frequency is exceeded. The sentence on lines 55-58 in col. 4, to which the Examiner refers, just states that the time delay is imposed to prevent burnout due to repeated inrush currents. It does not refer to establishing an energizing frequency for solenoid burnout protection, measuring the solenoid activation frequency, and adjusting the rudder error at which the solenoids are activated should the burnout protection frequency be exceeded.

The Examiner cites Hossfield against the adjusting step of claim 10, stating that "...Hossfield does change trigger points of solenoid activations to protect the solenoids", citing Fig. 6 as explained at col. 18 line 48 through col.20 line 4. Nowhere in Fig. 6 or in the cited section is there any implication that the trigger points are being changed to protect the solenoids. Hossfield does not teach or imply that the change of trigger points is for the protection of the solenoids from burnout. Hossfield changes the trigger points, as is stated throughout the specification, to improve the efficiency of the rudder operation by eliminating ineffective rudder motion. Hossfield does not teach or imply the adjustment of the set rudder error when the energizing frequency exceeds a predetermined burnout protection frequency.

In view of the above, Applicant contends that claims 10 and 17, as amended, recite a novel and patentable invention relative to the prior art, that

claims 10 and 17 are in condition for allowance, and such action is respectfully requested.

Claims 11 - 13 and claims 21 - 24,, which depend and draw novelty from claim 10, and claims 18 - 20 claims 25 - 27, which depend and draw novelty from claim 17, recite additional novel features of the invention. For example, claim 11 specifically recites that the activation rudder error is increased when the burnout protection frequency is exceeded. This claim stands rejected, the Examiner stating that, "Hossfield increases the varying limit specifically when the rudder is being moved too frequently (col. 17,line 64 - col. 18 line 14)". This section of the Hossfield specification does not refer to the protection of the solenoids do to activation frequencies that exceed a preestablished burnout frequency, it specifically refers to conditions during which "the rudder 61 is being moved to attempt to compensate for relatively high frequency disturbances which, in fact, the rudder 61 cannot effectively compensate.". In other words, rapid movement of the rudder cannot compensate for the instantaneous ship motion occasioned by adverse sea conditions. There is no mention in this section of the specification, or any where else in the Hossfield specification of increasing the activation rudder error when a predetermined burnout protection frequency is detected.

It is respectfully submitted that Applicants have responded to each and every issue raised by the Examiner in the Office Action of June 7, 2006 and that the claims, as amended, now in this application recite novel and patentable contributions relative to the prior art. Accordingly, favorable consideration of this application is respectfully requested and that a timely Notice of Allowance be issued.

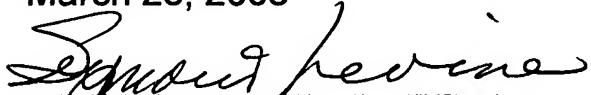
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I hereby certify that this correspondence is being deposited with the United States Postal Service as Express Mail No. EB 875998468 US addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on March 28, 2008


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